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AUGUST 1, 1927

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VOLUME
XXIII

SPECIAL FEATURES

NUMBER
5

THE ECLIPSE AS SEEN FROM A BALLOON
THE KINNER FIVE CYLINDER AIR COOLED ENGINE
METEOROLOGY OF THE NORTH ATLANTIC AND TRANS-ATLANTIC FLIGHT

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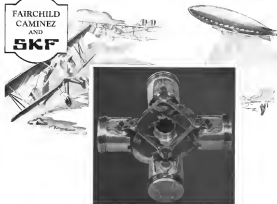
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With the Editor

On page 252 of this issue is to be found an interesting and informative article entitled "Meteorology of the North Atlantic and Trans-Atlantic Flight." It is written by Willis Ray Griggs, meteorologist in charge of aerological investigations of the U. S. Weather Bureau.

Mr. Griggs is exceptionally conversant with the subject on which he writes, having been engaged in upper air research since 1917, and having served as its present position since 1925. During the War he cooperated with the Army and Navy in preparing upper air information for selectors. He was special meteorological adviser at Trepower, N. F., in connection with the trans-Atlantic flight of the NC airplanes in May 1919, and also at Minota, N. Y., in connection with the England to America and return flight of the British dirigible R34 in July 1919.



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It's something to think about. For many a good propeller has been run off its prime by belly aches of water thrown up by poorly designed floats. And now Fairchild engineers have developed a float system that doesn't spray. This unique V-section float system—pulling greater thrust than the ordinary flat float. In rough water the sharp V in the keel breaks the shock and allows safer landings.

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Floats are now in production and ready for delivery for airplanes of 2500 to 6000 lbs gross weight. Other sizes are being developed.

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Vol. XXIII

AUGUST 1, 1927

No. 5

Perplexing the Buyer

RIGHT AT the very start of his search the prospective buyer of aircraft meets a difficulty which is almost insurmountable. Whether he be an experienced operator of aircraft or whether he be a novice he knows that the majority of claims made for the performance of aircraft are not based on rigid flight tests but are merely the estimates of the designer or salesman. The unfortunate buyer finds himself entirely at a loss as to what and whom to believe and having no reliable data to go on he is apt to be induced to make his purchase by the most glowing expressions, than by the test reports of the product.

Such a condition is undesirable and should be remedied. Not only does it make the task of the purchaser much more difficult but it may actually deter him from buying any plane at all and often for fear that he will find himself misled with a product which is not at all suitable for his needs. From this manufacturer's point of view certified performance would make the sales problem much simpler and would also help tend to cause the designer to improve the quality of his product. From the point of view of the manufacturer of accessories such as propellers, pontoons or skis, accurate performance data is absolutely essential.

The reason why rigid flight tests are not made is two fold. In the first, many manufacturers who claim and give out the actual performance of his plane is faced with the exaggerated claims of his competitors and he is forced to prove that the other was not truthful in regards to his claims. In the second place it is really extremely difficult and expensive to get real performance data and there are only one or two places in the country which are properly equipped to run such tests.

A remedy of the first situation can be brought about by the buyer himself. If ever one, or even a few of those having airplanes absolutely insisted on officially checked performance figures, the manufacturers would soon be forced to have their planes tested.

The second problem, that of having the planes tested, is more difficult of solution. At present only the military authorities have the facilities to get the data on high and low speed, rate of climb and endurance with varying loads, etc. This is a problem which would be well worth while for some of the many organizations interested in aeronautics to look into so as to formulate some standards for performance figures and to furnish ideas upon which civilian planes could be thoroughly tested at moderate costs.

The Aerial Era

MR. ROBERT KNAUSS of the Deutsche Luft Haas air transport company, who was in charge of the Moscow-Peking flight in 1926, makes, in a letter to *Aviation*, an interesting point concerning the recent flight across the Atlantic and Pacific.

"It was a great pleasure for us to welcome Chamberlain here in Berlin. You would have been surprised at the enthusiasm of the Germans who are usually not of a very demonstrative temper. This enthusiasm was kindled not only by the daring deed of the American pilot, but there was a deeper reason that stirred the public. Everyone felt that a new era, the era of world air traffic, had begun and that our conception of space and time had to undergo a radical change. Our epoch may be compared to the epoch about 1500 when during Portuguese and Spanish mariners for the first time sailed around Africa, and found the ocean route to the West Indies—when Columbus discovered America and Magellan for the first time circled the earth. Similarly, we are now in an age of discovery in the air. And the flights of Lindbergh, Chamberlain, Byrd, McMillan, Fiebus, Prinos, Colman—they are all—consciously or unconsciously—precursors of the coming world air traffic."

Expressed in such a clear manner, Dr. Knauss has given what may be considered the historical interpretation of the recent flights. Much of history is explained to wars and politics, but ours have been begun by other agencies, as he points out. It is wholly probable that the time in which we live may be characterized by historians as the Aerial Era. We thank our distinguished German friend for his discouragement.

"Avigation"

LIEUT. LESTER J. MAYLAND found a new word in the vernacular of his San Francisco-Hawaii flight, one that has been greatly needed in writing of flight. He suggests that we use the term "Avigation" for the diving or opening of aircraft from one place to another. The combination of the roots *avi* to fly and *igere*, to move or more syntactically correct, which will satisfy the learned who make the distinction, but it will serve to differentiate avigation from aviation which are two very different acts. It is not too much to believe in hopes to come a defied navigator may be entirely useless in an airplane while "avigation" will be in great demand for long distance commercial flying.

Meteorology of the North Atlantic and Trans-Atlantic Flight

Facts and Figures on Weather Conditions that Confront Ocean Flyers

By WILLES RAY GREGG

Metropolitan, U. S. Weather Service

THE AIRWAY between New York and Chicago and that between New York and Europe have many dangers in common. The first fact to be of the most strenuous commercial possibilities of any in the United States, arising as it does from the largest centers of population and industrial enterprise. But, by a strange pervasiveness of Fate, it likewise, one of the most difficult regions, from a meteorological viewpoint, that can be found in the entire country. Fog, low clouds in the mountains and widespread storms, including one, will cover in vision, one coast of the clouds with which the pilot must contend. Yet these difficulties are being overcome, but in fact obscure, to a considerable extent, however, and the percentage of flights completed on schedule are amazingly high.

A Great Commercial Appeal

Similarly the route from New York to Europe has a large appeal commercially and in other ways, perhaps the largest of any that will serve not one but several different countries. Yet it too is beset by many meteorological hazards that perhaps are only slight in the Northern Hemisphere.

In a period of less than ten years the difficulties of the New York-Chicago airway have yielded in the completed task of radio, frequent weather reports, better lights and improvements in design and manufacture of aircraft. It is hardly too much to say that no extension of this work, however perhaps and with variations here and there, will leave the transatlantic North Atlantic and result in a service that will be reasonably regular and dependable. But these who make the attempt must know in advance with what obstacles they have to deal. Let us examine the most serious of these. In doing so, we must necessarily limit in terms of present day aircraft and their limitations, although the factors will undoubtedly see the development of both better and

lighter than aircraft that, like modern steamships, will defy all but the most violent storms.

The shortest route is that to Ireland by way of Newfoundland and it is in this part of the Atlantic that the worst weather prevails. A somewhat longer route, but with better weather conditions, part of the way, is from Newfoundland to the Azores, thence to Portugal. Undoubtedly the best one from the meteorological viewpoint is that by way of Bermuda and the Azores or still farther south, but the route is much longer than either of the other two. Finally, a route that has received some consideration, and in fact was followed in the "Round the World Flight" of the Army Air Service, is that between Labrador and Scotland via northern Greenland and Iceland. This has the advantage of comparatively short legs but is considerably longer than the direct one from Newfoundland to Ireland and has the added disadvantages of lower temperatures, absence of weather reports and navigation from shipping routes. In development, therefore, this route will be confined to the route, New York-Newfoundland-Ireland and New York-Azores-Portugal.

Fog is the Most Serious Obstacle

One of the most serious obstacles to trans-Atlantic flight is the large percentage of days with fog. The region near Newfoundland is notorious in this respect, fog occurring on 50 to 60 percent of the days in summer (50 to 60 percent in June) and 30 to 35 percent in Winter. The frequency in the vicinity of New York is smaller although appreciable, averaging 35 to 50 percent in summer and 10 to 20 percent in Winter. There is a sharp decline off to European waters, but even in the North Atlantic it amounts to only 5 to 20 percent, slightly higher than in the summer and lower in Winter. Fog rarely occurs over the Azores or between them and Portugal.

The Newfoundland fog has their entrance for the west

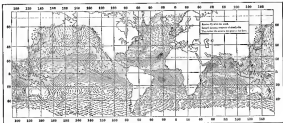


FIG. 1. Cross winds, July and August.

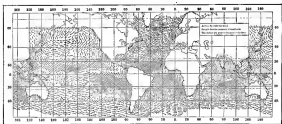


FIG. 2. Cross winds, January and February.

part to the blowing of warm, moisture-laden winds from the Gulf Stream region over the colder waters of the Labrador Current. Very few observations of this type of fog in the past have been made, but these indicate that this type of fog is comparatively short-lived. Out of four low clouds in fog observed during the cruise of the British S. S. *Scots* off Newfoundland in 1933, only one showed a height exceeding 1000 ft, the average being 500 ft. The one exception was due to long-continued blowing of warm air over recently cold water, but even in this case, the top of the fog did not quite reach 3000 ft. Two years later the low fogs in fog were made from the deck of the U. S. Coast Guard Cutter *Albatross* and nine of those showed a height below 500 ft, the remaining one the most height was not definitely determined, but the temperature record indicated about 5000 ft. As that studies of fog at sea during this and other cruises of the *Scots*, *Wells* and *Thetis* of the U. S. Bureau of Standards revealed the same conclusion with respect to the height, this conclusion being based upon the fact that there is nearly always a higher temperature at the top of the mist than on the ship's deck and that, if the temperature increases with height to greater heights (and this is worth more than to be true) a gain must now be gained at which fog is impossible. Additional testimony from land observers, in support of these conclusions, is contained in a report of the British Civil Aerial Transport Commission, published in 1935.

Reversed Conditions Create Dangers

There are many conditions to look out when fog sweeps into or is created by low-lying clouds during storm periods in which the clouds themselves extend practically to the surface. Under such conditions what would appear as fog but would really be clouds (of course their effect on visibility would be the same) might well extend to 10,000 ft. or higher. No definite data on this point are available.

While the conditions that produce fog are reversed, that is to say, when cold air from the north flows over the Gulf Stream or other relatively warm waters, the large difference in temperature of the surface and in the upper layers results in barometric which at times is very marked and troublesome. This condition has been reported several times, notably by pilots and others in the NC planes and the British supply ship *Bliss*. The American coast, particularly the vicinity of Newfoundland where the contrast in temperature of the Gulf Stream and Labrador Current is greatest appears to be most subject to hurricanes. There is probably considerable

latitude in the eastern part of the Atlantic except, of course, locally at times in connection with hurricanes.

The average, or maximum, wind velocities over the North Atlantic for summer and winter is shown in a general way in Figs. 1 and 2 respectively. More detailed information is given in Pilot Charts and this can be briefly summarized as follows: On the average along the northern route winds in summer are from a west-northwesterly direction, with a velocity of about 15 to 20 m.p.h. In winter they are westerly with a small component from the north, usually 10 to 20 m.p.h., to longitude 45° W. Further east they have a strong south component, becoming southeasterly near the British Isles. The mean velocity along the western route is 20 to 35 m.p.h., being highest between longitudes 15° and 25° W.

Over the northern route which in summer are southeasterly, about 15 to 20 m.p.h., to longitude 15° W., variable and light

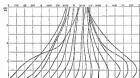


FIG. 3. Average wind velocity in miles per hour.

between the Azores and Portugal, 15 to 20 m.p.h., between the Azores and Portugal.

The frequency of winds with a west component, i.e., north-northwest to south-southwest, varies along the northern route and also on the western route of the southern route from about 60 percent in winter to 70 in summer; over the Azores, from 75 to 60; and between the Azores and Portugal from 60 to 30 percent. In the last-mentioned region winds from all directions are about equally frequent in winter, but in summer southerly winds predominate.

There is very little direct observational evidence regarding

wind structure over the ocean but shows a large amount of data accumulated as a result of investigations on land with later and better wind instruments can be made, providing we keep in mind the difference in the effects of land and water surfaces on air movement as related to pressure distribution. It is well known that, for the same pressure gradient, surface winds are sensibly stronger at sea than on land and that they blow more nearly parallel to the isobars. This is owing to the greater inertia, on land, of friction and turbulence caused for the most part by topographic irregularities. It is also well known that there is a definite relationship between pressure gradient and wind at a constant height, usually about 1500 ft. above the surface above friction is largely absent. This wind is known as the "gradient wind". It blows essentially parallel to the isobars and at a speed that varies with the pressure gradient and to a lesser extent with surface friction. In other words, gradient for gradient, the wind at flying levels over the sea are sensibly the same as over the land. But, as already stated, surface winds at sea are considerably stronger than on land and blow more nearly parallel to the isobars. Therefore over the former the increase in speed and the shift in direction are less than above the latter.

With the foregoing in mind we can summarize briefly the wind features of wind structure over the ocean, as follows:

1. From the surface to about 1500 ft. there is a marked increase in velocity, which is on the average about one and three-fourths times higher at 1500 ft. than it is at the surface. This increase is found with all directions, but is most pronounced with those from a westerly point.
2. Surface winds of all directions usually vary (due to the wind, e.g., wind to north-west) with altitude, the amount of the varying being on the average about 15° to 30°. However, it is somewhat less with northerly and easterly than with westerly and westerly surface winds.
3. From about 1500 to 3000 or 4000 ft. there is large variation in the wind velocities. With easterly winds a decrease ordinarily occurs and in many cases this is very marked; the reverse being true with the surface winds. With westerly winds, on the other hand, particularly during

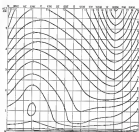


Fig. 3. Average annual increase of wind velocity above surface velocity for different surface directions.

Winter, there is often a combined increase, the winds sometimes blowing at hurricane velocities.

4. In this same layer the direction tends to become more and more westerly, from east over through south to west continuing to vary, but the remainder, i.e., mid-northeast to west-northeast, backing. The amount of the shift in direction is greatest with easterly winds. In other words, all winds tend to become westerly at the higher levels.

5. Above 3000 or 4000 ft. winds from all directions on the average increase more or less regularly in velocity, these

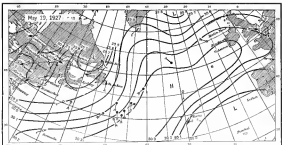


Fig. 4. Average annual increase of wind velocity above surface velocity for different surface directions. The title is 'Fig. 4. Average annual increase of wind velocity above surface velocity for different surface directions.' The map shows contour lines for wind speed increases in miles per hour, with a legend indicating 'H', 'L', 'T', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z'.

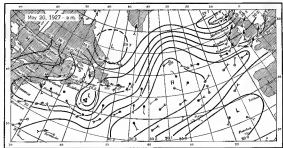


Fig. 5. North Atlantic Weather Map, 8 A.M., 12th month day, May 20, 1927. (For explanation of symbols, see legend under Fig. 3.)

from westerly points showing the largest increase. At the same time winds which had an east component at and near the surface approach more and more nearly a westerly direction with the result that in general the winds in the upper levels, 50,000 ft. and higher, are between south-west and north-west, the former predominating there areas of low pressure and the latter above areas of high pressure.

6. There is not, at any altitude in the regions under our consideration, what may be called a "trade" wind, as a wind approaching regularly either as to direction or velocity. It is true that in the upper levels a west component prevails probably 90 percent of the time in Winter and 75 to 80 percent in Summer, except in the eastern section of the southern route, America to Portugal where it is occasionally less in both seasons. But the velocity of the wind varies within wide limits, at times reaching 150 to 200 m.p.h. and at others falling practically to calm. Moreover, as above indicated it has an east component in many instances. These statements apply to all altitudes up to 50,000 ft. and are based upon numerous balloon and upper draft observations in America and Europe at the same latitudes as those of the routes under discussion.

7. There is a pronounced seasonal variation in the winds, those of Winter being much stronger than those of Summer, at all heights. Moreover, in Winter the turning of surface winds into westerly masses occurs rapidly with height.

For the year as a whole a good idea of the structure above different surface winds is given in Figs. 3 and 4, taken from a recent Weather Bureau publication. In these figures altitudes are represented in kilometers (2 km.=3,281 ft.) and wind velocities, Fig. 3, in meters per sec. (1 m.p.h.=.447 m.p.s.).

Fig. 3 shows the average turning at different surface directions with altitude and Fig. 4, the increase in velocity. The data are based upon some 20,000 observations in the United States but undoubtedly represent in a general way the conditions over the North Atlantic also, with the exception that the actual velocity becomes considerably above the surface shown in Fig. 4, in similar order over the ocean period out to further compass.

Understandably, there are striking characteristics of the winds along the line flying routes, with the exception of the

region between the Azores and Portugal. Practically all of the cyclonic disturbances that cross across the United States, no matter what their place of origin, enter the North Atlantic slightly to the north of Newfoundland, moving thence south-northwestward toward Ireland and northern Europe. These disturbances vary considerably in size, intensity and rate of travel. In addition some storm systems enter the ocean to itself and occasionally in form a tropical cyclone mass southwest from the West Indies region and joins the procession.

An index of the frequency of their occurrence is afforded by the fact that the average distance between Newfoundland and Ireland is about 10 percent throughout the year, and by the further fact that precipitation is some four times as much on the coast of Newfoundland as on the coast of Ireland. Over the ocean it probably occurs on 200 to 250 days along the northern coast and 150 to 200 along the southern.

The more intense cyclones are often accompanied by gales having velocities well in excess of 50 m.p.h., the direction of the gales depending upon the part of the storm in which they occur. The example, considering a typical case, viz., a well developed low pressure mass having New England and New York and eventually most of Newfoundland, passes over the latter would be accompanied from the east, southeast, north, northwest and west. Along the northern coast the center of the storm on about 25 percent of all days in Winter and 5 percent in Summer. In Winter they are often accompanied by violent seas, squalls and in spring and autumn by ice. On the southern route the frequency of days with seas in New York is about 20 percent in Winter and three in Summer from New York to the Azores and about seven and one percent respectively between the Azores and Portugal.

Little attention would be paid this current mass in fact for its occurrence with the occurrence of clear and sunny. Mean monthly temperature varies from 50° F. in July to 30° F. in January at St. John's, 55° to 35° at New York, 50° to 40° at London, Ireland, 50° to 35° at the Azores and 50° to 35° at Lisbon. Maximum temperatures are less in 15° here

(Continued on page 262)

The Recent Eclipse as Seen From a Balloon

By F. L. M. BOOTHBY
Casper, RN (Boothby)

FEW PEOPLE have had the opportunity of viewing a total eclipse of the sun from the air and only three, as far as I know have been so fortunate as to see it from that ideal vantage for the purpose, a free balloon. Not only is the view undoubtedly the most admirable from an airplane, but owing to the absence of noise and vibration, the sounds from the ground below, the crowing of cocks, barking of dogs, etc., can be distinctly heard from your vantage. Mr. Hedger Biddle, the founder of the Royal Aero Club made an ascent from England during a partial eclipse and got some excellent photographs at 16,000 ft. On descending through the clouds he found himself over the English Channel and had to carry on and land at Normandy.

Remembering, for example, the newly formed Airship Club decided that an ascent should be made with the Club Balloon

the balloon for flight, we will call this the Fifth. As the last balloon the Gordon Bennett pilot could not get leave to join the party which was a disappointment to us all. Arrangements were made to inflate the balloon at Fresno about on the centre line of the eclipse and there the Fifth was inflated on June 27 to make ready.

On several it could not be inflated, though it had been despatched four days before. Inquiry showed that it had been sent by goods train by mistake, and was returned many miles away. The gas company had only gasolene being able to supply as at the rate of 15,000 cu. ft. per ton, so that at least eight hours were necessary to fill the balloon. As a check at angle was therefore the least we could start inflation. The Fifth got busy and the railway company was good, the balloon was ascended from the goods yard and five-and-a-half passengers took on as my ascent I was told it could be ready at 7 P. M.

Balloon Made Ready in Record Time

Seven, eight and nine o'clock passed and still no balloon. About 9:45, despatch lorry rumbled into the grounds with the balloon basket in which the envelope was packed, the whole weighing about 17 cwt. This took some moving, but every valiantness came to our assistance. The balloon was prepared for inflation in record time thanks mainly to the efforts of the Fifth and an excellent man employed at the grounds, who proved to be an ex-aviationeer of the Royal Naval Air Force, a tower of strength and a credit to his profession. Only at 10:30, however, was we ready for inflation.

In fact time the balloon had been tied with a line of steel, the balloon prepared and placed in its net, and it was with relief we saw the gas begin to flow in. Then the Fifth came to grief, lifting a heavy weighing it ruptured himself. He was permitted to go to a doctor who told him he could have been dead by morning had he not been attended to. At midnight he turned up on the ground and retired in enjoying the reminder of the work.

The night was spent waiting the weather down the net as the balloon filled and wondering whether we should be ready in time. Fortunately the custom North Coastmen at the Grounds had a lot of hand and were able to supply more than 10,000 cu. ft. per hr. and at 1:30 climb began as well that a mere was made to the hole for inflation, which we had to the main of a new hand placed for the remains at "The Edison Gas Night Party." Returning to the grounds the net was set up, instruments changed, and all made for the flight at 5:30 A. M.

Prepared to Start at 5 A. M.

The night had been calm down below but there appeared to be a 30 mile wind from the south west north, which we knew was likely to start on the ground during the day. As we had only some 15 mi. to run to get out of the Valley, and the eclipse was due at 6:24 it was arranged to start at 5 A. M. The ground was not good to get away from. To the south was the gas-ometer on each side within a balloon's width, were telephone wires, and directly down-wind were the spires of a church—such things are a nuisance to those who desire to catch a cold—no wonder. The pessimistic soldier who said he couldn't climb a ladder without getting dizzy, despised that the bottom of the basket was the place for him, and "would we please call him when the balloon was over", while the excellent surgeon man, who said he was only com-

ing because he couldn't find another deal to take his place, took to the job of assistant pilot.

The balloon began to rise slowly and we judge it will be very on the wind appears to be strong. So far no rain before sunrise here we believe up about 50 lbs. light, and are ready. The emergency escape and party gave at a mighty heave into the air and we are off well clear of telegraph wires and houses. A minute later the church spire passes 100 ft. below us and the soldier is duly silent. Not a sound is to be heard but the noise of the stream bearing the "Anopheles" which are streaming into Fresno and the shrill scream of the party of children who had collected from the neighboring cottages to see the start.

"This feels singular" says the soldier.

"It is strange" says the pilot. "I have never met anything so peaceful in my life before."

The soldier is now experimenting with only his head over the side of the basket and finally decides he can look down without feeling giddy, and so too since "indication" are made!

Common Man Hard at It

We are at 1,000 ft. now drifting slowly northward and the sun, red, full of sun and cloudiness, down through the light mist. Dense clouds lie to the east, covering the top of the hills, the rocky summit of our past viewing is then our eyes level. The sun is visible through a slight haze and at just too bright to look at comfortably without glasses. At 6 o'clock we are at 3,000 ft. and the photographer becomes enthusiastic. "What a view, what light effects on the clouds!" The camera keeps incessantly, the exposure getting longer and longer as the light fades, till we are reduced not to stare while a picture is being taken, but to stare at the sun and a line airplane drifts into the space below us. We decide the sun is clearer down and so descend to 2,500 ft.

Hereafter there has been nothing special about the flight, just the ordinary beautiful cloud effects one frequently gets in the air. But with the approach of twilight things undergo a change. The sun below us turns blue, deepening into the darkest indigo. To the East, the clouds over the Falls turn from pearl grey to a pale blue color. To the West, a sea of darkness of the night sky, now where it meets the sky.



The partial eclipse of the sun as seen from the main plane over England on June 27.



The sun as seen from the main plane over England.

where a broad gold band glimmers and glimmers. Overhead the sun is light blue and the sun can be only seen without glasses. Then the sun is withdrawn! Suddenly the sun falls there itself to be a mere—no—something—thunder to accompany the phenomenon. It is the silence that is heard, the rest is beautiful. I looked to the West, and as I looked the broad gold band is lifted out, stretched off like a match light beam. That I could have expected, but within three seconds it vanishes so silent!

After back to the sun. Suddenly the camera leaps out—a pale light flash—disappearing. This color and silence I take to be the intervening haze, but the result is wonderful. Then a burst of light on the edge of the moon and the sun turns into view again—our Fifth it should come—but it doesn't! And that feeling of self as seeing the sun again—what! Our own well understood the effect of an eclipse on a people who do not understand the cause. The color change seems the greatest previously gone through and we are back as we were two minutes ago.

The camera still works, the wind-whirler which is busy with its pencil recording his impressions. A soldier notes, we look at each other—"Well, that's that!" says one—"Think that I've seen it!" says another. "Here, here" say all of us, and it is decided now one that it was the first night we have ever seen and will watch the night for a night. A slip of laundry followed in silence to the west.

A Landing is Forecasted

The balloon landed as one would expect. There was slight cooling, and consequent drop, during the eclipse, nothing out of the way. We let her drop and drift along just below the top of the Falls towards Lancaster where it is decided we should try to land, it being a good point to dispatch the photographs to their destination by the express waiting to sail the three when it heard where we had descended. But the lines rise otherwise. Just as we drop out a loud roar, ready to break, a drift of wind drifts on over the railway sleep with a train is coming, and it becomes as hot to risk getting the balloon tangled with a train. What would our Committee say and what might not the Chairman say on her part!

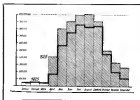
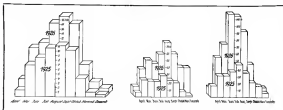
So up again and the wind takes us over Mountaine with-



An early stage of the eclipse of the sun as seen from England. The shot in England is at 10:30.

"The". The Fox is ordered the this year's Gordon Bennett Race, and is the Club "new body" so I must appreciate their allowing me to make such arrangements I liked for an ascent.

The original proposals were that one of the crew of the balloon proposed for the Gordon Bennett race should come for a special flight and that two passengers should be taken, one an expert photographer, and the other a descriptive writer. The balloon was an ascender who took a pessimistic view of our chances. The last time he had been in the air supported by gas was when he had been imprisoned in a new engine in Fresno, and his subsequent temporary liberty had given him rather a prejudiced view on the desirability of leaving the earth surface. The photographer was a "washed" R. F. C. pilot—can only climb, but badly hurt and not prepared to fly again, but very much "set out". Being a sailor several of these services were requested. Another member of the Club undertook the duties of preparing



Stinson-Detroiter Aircraft Shipped by Month—1937-1938

companies, the safety of air travel. This rate of premium has been lowered from time to time and most German insurance companies have matched the premium at that point regarding airplane travel. Every insurance may be insured at any of the airlines and baggage and freight may

also be insured. The premium for shipping by air is little more than half the corresponding rate for sea or land.

After a passenger has purchased his ticket at the main office he is told at what hour an airplane will take him to Tompkins Aerodrome. Many go by train as it is located near the center of Berlin. The buses are modern and very comfortable and take less than a half hour to reach the airport of Europe. On arrival, the passenger's ticket is examined, his passport, if he is not a citizen, looked over and both he and his baggage weighed.

Restaurant on Roof of Main Building

The main building has been erected by a local company and restaurants are leased for various services. There is a roof restaurant where those awaiting the arrival or departure of the planes may secure an excellent meal or refreshments. The control tower is located in front of the main building which is flanked on either side by large hangars. Signal towers for radio, and night lighting, are placed in front of the main building while the whole field is equipped with the most ground lights for the Berlin-Stinson plane which leaves at 5 A.M.

One of the distinctive features of all Luft Hansa airports is the uniform sign which instructs passengers with their baggage, gives them entries in travel papers kept for their cars and sees that the doors are closed. On arrival from Paris



The Tompkins Aerodrome near the center of Berlin.

PRACTICE WHAT YOU PREACH — USE THE AIR MAIL.



The speedy Stinson-Detroiter Monoplane. Carrying seven passengers and a total useful load of 2,375 pounds the plane made an official high speed of 126.1 miles per hour and averaged 112.4 miles per hour on a 4,166 mile course.

Again The Stinson-Detroiter Leads

Carrying a useful load of 2,375 pounds and a contest load of 1,500 pounds, a stock, seven passenger Stinson-Detroiter monoplane won the 4,166 mile National Air Tour and the Edsel B. Ford Trophy with a lead of 2,000 points over the plane which finished in second place.

Never before has an airplane carried a load totaling 275 pounds more than the weight of the airplane itself, into and out of all types of landing fields over a 4,166 mile course.

And as a further demonstration of the reliability and efficiency of Stinson-Detroiter planes a stock Detroiter biplane won fifth prize money in the National Air Tour. This plane had been flown 370 hours without motor overhaul prior to the Tour.

In competition with the best commercial planes Stinson-Detroiters have decisively demonstrated their superiority.

Let us tell you how the Detroiter can solve your problem, be it air mail, aerial taxi service, business, pleasure, photographic work or training.

STINSON AIRCRAFT CORPORATION

DETROIT, MICHIGAN, ☎ ☎ Factory: Northville, Michigan



Typical map furnished passengers by the Danziger Luft Flotte. It is printed in colors. The line on the map shows the route between Danzig and the islands in the Danziger Bucht.

and passengers, particularly the latter, to flight and attack the planes for any articles that may have been forgotten. The uniform cover of these boys is (usually) commented on by every traveler.

On the field, planes of all sizes, types and nationalities may be seen. Monoplanes are to be seen in greater numbers than biplanes. Planes made by Junkers, Dornier, Heinkel and Albatross are all used by the Luft Flotte. French and English air transport planes may also be occasionally seen.

Planes for two to five passengers are used on the shorter routes while planes seating 22 to 36 passengers are used on the main international trunk lines. Planes with sleeping accommodations are now in service and more are on order.

The development of airports in Germany has become as important to the expansion of the air transport system. In fact it is generally assumed that both are necessary to accomplish satisfactory air traffic results. While the Tempelhof Airport in Berlin is much larger and more completely



Interior of Junkers biplane showing luxurious passenger seats. PRACTICE WHAT YOU PREACH — USE THE AIR MAIL.

SAN FRANCISCO AIRPORT Selects Sperry Arcs



2 Sperry 18" High Intensity Arc Airport Lights of San Francisco Airport giving 180° spread of light.

THE latest and most complete Airport in the country is the San Francisco Airport. Sperry Arcs and 14" Revolving Beacons were selected as the most economical and efficient Airport lighting equipment. The High Intensity Arc is the most efficient source of light known. A 5500-watt Arc in an 18" projector with an 80° spread lens produces a fan of light of 1,000,000 candle power. Two of the lights together give 180° spread of light.

The Navy, Army and U. S. Air Mail use High Intensity Arcs in their Airport Units because of the high efficiency obtained.

The Sperry 18" High Intensity Arc Airport Light is:

- (1) Low in first cost
- (2) Low in operating cost—uses only 5500 watts
- (3) Easy to operate and maintain
- (4) Projecting the 80° spread doorlock, quickly converted into a 50,000,000 candle power hand operated emergency beacon for heavy weather operation
- (5) Adjustable for ceiling light

Investigate carefully before you purchase your Airport Lighting Equipment.

Write for our complete Bulletin.



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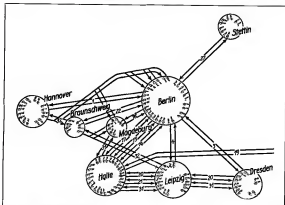
CLEVELAND
Katharine Building

LOS ANGELES
214 Grand Boulevard

SAN FRANCISCO
Market Building

PHILADELPHIA
205 Rittenhouse Square

SEATTLE
Cassel Building



A network of an operating chart of the Deutsche Luft-Reise. The lines in the picture show the time of arrival and departure of planes as indicated by the numbers. This diagram is here taken as available to all passengers and from it, complete trips covering many cities can be planned quickly.

equipped than any other flying field in Germany, other cities have taken good pains to arrange airports that will provide for the present and future air traffic.

Cologne, Koenigsberg and Breslau have particularly well equipped facilities for taking care of air travelers. At Koenigsberg the buildings are of permanent construction and have arrived in a ready state for other more recently constructed fields. At Cologne there has been built a modern type of airport with every facility for the convenience of passengers. A concrete apron has been laid on the field with concrete walls to it from the waiting rooms so that when it is rainy, passengers can get to the planes without getting their feet.

At the large German airports no landing of planes is permitted in view of passengers. This avoids creating the confusion in the minds of travelers that adjustments are required. Engines are warmed up at the hangars which are at a considerable distance from the passenger building. When a plane arrives, the passengers alight, baggage, mail and freight are removed and the plane is immediately loaded to the hangar. When departing the plane is brought to the apron ready to fly and can leave as soon as it is filled. This plan not only is a great convenience to passengers but permits many more planes to arrive and depart on schedule time.

When a passenger purchases a ticket, he not only receives a map of the route, but on this folder are also maps of cities along the way showing the general location of the airport with relation to the "backbone" or railroad station. Airports are located as near to the center of cities as possible. It has been found that centrally located airbases are more profitable.

Major Wrensky has stated: "It is statistically proven that

airports which are located near the center of a city are showing a better frequency than those in which the airports are situated at a distance of several kilometers. A map to the windows in the rush hours, the convenience with the traffic from one's own inspection, being thereby assured to take the best of a first class car trip, does mean to make air traffic popular than a loaded railroad or bus line. As all airplanes pass over all larger German cities regularly, the population is impressed by the benefit of air traffic, and it will be educated to an extent nation."

In the next article a description of flights over some of the new air lines will be given and in a concluding article there will appear a description of the leading German air transport companies.

Mainland-Honolulu Flight Rules Announced

Arrangement has been made by the Civilian Committee of the National Aeronautics Association of instructions for enroute to the Mainland-Honolulu flight to begin Aug. 15 for which James D. Doyle of Honolulu has offered \$50,000 in prize.

According to the rules, all contestants, or their representatives, must be on hand at San Francisco to draw lots for positions in the starting line on or before noon of Aug. 5. The contestants must take off within six minutes after the official starter's signal on penalty of being sent to the end of the line.

Four winners have officially entered the field. They are Frederick Alexander Givis of Dallas, Art Goshel of Los Angeles, Maj. Livingston Irving of Berkeley, Cal., and Angie Dallas of Flint, Mich., with whom Miss Mildred A. Torres, Flint school teacher plans to fly.

An Outstanding Record

This summary of the recent marvelous American exploits in the air is a summary also of the events in which Bohn Ring True Bearings have played a meritorious part.

Commander Byrd's epochal flight over the North Pole.

World's record sustained flight of 51 hours by Chamberlin and Acosta.

Lindbergh Flight—New York to Paris.

Chamberlin-Leetie Flight to Kottbus, Germany.

Commander Byrd's Flight to Ver-sur-Mer, France.

Mainland-Honolulu Pacific Flight to Honolulu.

The Wright Whirlwind Motors in all planes used in these flights were equipped with Bohn Ring True Bearings.

We are proud indeed of the record of America in the progress of aviation and proud of the fact that Bohn has been able to contribute to the success of these heroic ventures.

BOHN ALUMINUM & BRASS CORPORATION

DETROIT, MICHIGAN.

Makers of Bohn Ring True Bearings

BOHNALITE

Meteorology of the North Atlantic and Trans-Atlantic Flight

(Cont. from page 245)

been observed at St. John's—21° also at New York, and 21° at Valencia. Freezing temperatures have never been reported in the Azores or at Lisbon.

From the few upper air observations made at sea and by inference from numerous readings above land it seems likely that extremely low temperatures would seldom be experienced at altitudes up to 5,000 ft. Conditions in this respect would be better than in the interior of this country and Canada at corresponding latitudes. As is well known, temperatures generally decrease with altitude and we should expect therefore to find low values, particularly in winter, at the upper levels. On the average they would probably be some 10° to 15° to 35° F at 10,000 ft. and 20° to 28° at 20,000 ft. in winter, and 25° to 30° at 10,000 ft. and 5° to 30° at 20,000 ft. in summer.

Low Temperatures at Low Levels

From the foregoing it will be seen that temperatures near freezing are likely to occur in the lower levels at almost any time along the southern route, except in summer. When the air is saturated at these temperatures, and it frequently is, snow or frost are almost sure to result, and these, especially along coasts, are great hazards to ships, perhaps greater. Neither would be associated in the eastern part of the southern route nor for that matter in the western part, New York to the Azores, except during the winter months. In the region as well as in the lower fog frequency, this route is greatly superior to the one further north.

Such, in a brief review, are the weather conditions over the North Atlantic en route for that matter in the western part, New York to the Azores, except during the winter months. In the region as well as in the lower fog frequency, this route is greatly superior to the one further north.

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prevail at practically all points along the route so that the weather is fine, assuming the aircraft has a cruising speed of 90 to 100 miles, it takes hours or more, good, one on which southerly winds predominate, although head or cross winds prevail part of the way, the assistance given a gain in time of one to three hours, but, one on which the possibility of forcing winds is given the same as that of head or cross winds, so that the time required for a flight is nearly the same as if there were no winds whatever; and, one on which head or cross winds predominate or one on which very stormy conditions prevail. The results were published in detail in the Feb., 1918, Monthly Weather Review. They may be briefly summarized as follows:

For flight from America to Europe				
	Excellent	Good	Fair	Poor
Northern route	43	84	87	171
Southern route	36	70	92	181
For flight from Europe to America				
Northern route	3	11	18	300
Southern route	7	35	90	175

These are annual values. The most striking feature is the importance of looking for southerly winds on the west wind flight. Aircraft must be capable of overcoming head and cross winds of there is to be flight westward on anything like a regular basis, unless a route much further south, i. e., in the Trade Wind belt, is selected. In the latter case the ultimate result would be about the same because of the great difference in distance.

It will be noted, in the figures given, that the number of favorable days for westward flight is greater on the southern than on the northern route, but, in order to obtain the most basis of the classification is the occurrence of southerly winds, this being up to the present time a necessary condition for success. As the cruising radius of aircraft increases, the better general weather conditions along the southern route will shift the advantage very decidedly in this route.

Perhaps as good an index as any other of the infrequency of good flying weather is the fact that, with our available compass, Col. Charles A. Lindbergh, who has made many trans-Atlantic flights have stated, in some cases, winds, for favorable conditions, and even those conditions have been far from ideal. In every case, however, steady and light winds were encountered in some portion of the trip. And this would be true in general. Days with southerly winds are readily be-

WACO TEN "WHIRLWIND" PLANES

— finished National Air Tour with highest percentage of possible points, 99 and 98 per cent out of a possible 100 per cent obtainable.

Waco Ten "Whirlwind" wins highest average speed for entire 4166 miles of tour, averaging 118.23 M.P.H.

Waco entered four ships and four ships finished.

All planes were standard Model Tens.

A letter today will bring complete details of the Waco "Whirlwind" and Waco OX5

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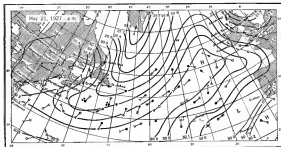


Fig. 2. North Atlantic Weather Map, 8 A. M., 21st northern time, May 21, 1927. (For explanation of symbols, see legend under Fig. 1)

PRACTICE WHAT YOU PREACH — USE THE AIR MAIL

altered, but it is doubtful if there are ten days in a year in which conditions otherwise are really favorable or more than half of the northern route. On the southern route, assuming the theory there would probably be the outside limit. This weather, as already intimated, would increase considerably for a route by way of Bermuda and the Azores or still farther south, so far as general weather conditions are concerned, but how we have the greater distance to contend with.

Conditions During Lindbergh's Flight

Because of the great distance interval of Colonel Lindbergh's flight from New York to Paris, it seems worth while to review briefly the weather conditions that prevailed during that flight. At 5 P. M. (75th meridian time) of May 15, a ridge of high pressure extended from Denmark to the British Isles. This, with wind conditions, was favorable, but there was low pressure centered over Labrador which was likely to give back weather east of Newfoundland. These conditions are shown in Fig. 5.

Colonel Lindbergh left at 5:52 A. M. (75th meridian time) of the next morning and landed at Paris at 4:51 P. M. (also 75th meridian time), May 16. Figs. 6 and 7 indicate the meteorological conditions that he encountered. There was little to be feared so far as winds were concerned. They were in fact very nearly as good as those that speeded Alcock and Brown across in June, 1919. As with them, however, Lindbergh's flight was attended by numerous meteorological hazards, including fog, sleet and snow. And as it has been so practically all of the attempts, including the most recent, those of Chamberlain and Levine and Commander Byrd and his associates.

In the ill-fated flight of Nungesser and Galt wind conditions were assumed, as shown in Fig. 8. Presuming the line best in the north of the low pressure and cleared at a low altitude, they would undoubtedly have had help from the winds with over the American coast, but they would also almost certainly have encountered heavy darkness and sleet.

These are easy things to be done in order that flying across the Atlantic both ways may be safe and dependable, but there is one thing that looms largest from the nature's capriciousness of fate. That is, an arrangement whereby all ships, ships and weather reports by radio or stated later, there to be supplemented by special reports when conditions

show marked changes. At the present time nearly all ships at sea keep meteorological logs and many of them furnish extracts thereof by mail to the meteorological services of various countries for statistics and other purposes. For example, these data from the logs of the weather information on the well known Fleet Charts, used by the Hydrographic Office in cooperation with the Weather Bureau, the latter service relieving and compiling the data. The Weather Bureau also has wide experience in the collection of such data having for many years operated a radio weather service throughout the region frequented by West Indian hurricanes. With such a system extended to include the entire North Atlantic, supplemented by reports from Greenland, Iceland, Labrador, Bermuda, the Azores and the coast on either side of the Atlantic, pilots would know beforehand in detail the conditions surrounding them and could also learn on route concerning changes in these conditions. With this information in hand they would often be able to deviate from a straight course in order to fly in those portions of high and low pressure areas in which would be found the most helpful winds and the best weather. The service reports would in time be supplemented by upper air data which would enable the pilots to fly at those altitudes where the fastest time could be made.

International Development Necessary

This plan, if it is to function most effectively, must be developed along international lines. Details will have to be worked out later, but in general it would seem that the meteorological services of America and Europe should, by agreement, assume the responsibility of receiving reports from ships in certain designated areas of the ocean and of furnishing forecasts for those same areas. These reports and forecasts would be exchanged, by cable or radio, so that those stationed on both sides of the Atlantic, would at all times be in possession of as complete information as it is possible to provide. Aside from its application to the needs of commerce, this information would be of almost incalculable value to the meteorological service themselves, which can now scarcely be hampered in having data only for limited portions of the earth's surface, this making it practically impossible to trace the life history of high and low pressure areas and of their accompanying weather. A radio reporting system for the



THE EYES OF THE WORLD are centered upon aviation today. Never since the Wrights made their first historic flight at Kitty Hawk has there been so much public interest in airplanes and flying achievements.

This renewed public attention is giving a great impetus to commercial aviation. It is safe to predict that greater progress will be made in the development of commercial air transportation during the coming year than at any time during the whole history of aviation.

The success of commercial aviation depends upon the degree of safety which it attains. There is no longer any question about the safety of the airplane itself as a means of transportation. It is quite generally recognized that a well constructed airplane is as safe as a first class passenger train, providing both plane and motor are kept in perfect condition.

The development of commercial aviation on a larger scale is chiefly, then, a question of maintenance. The planes must be rigidly inspected before they are allowed to take off. The motor must be kept in perfect running condition, as engine failure inevitably means a forced landing and a possible crash. Above all, the motor must be correctly lubricated.

Stanolind Aero Oil

is the ideal lubricant for airplane motors. A record of 3,735,000 miles in the U. S. Air Mail planes, without a single instance of engine failure traceable to faulty lubrication, has proved its quality.

Stanolind Aero Oil may be obtained at practically all landing fields throughout the Middle West.

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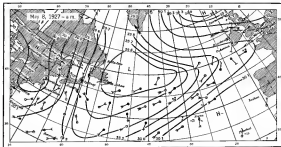


Fig. 6. North Atlantic Weather Map, 4 A.M., 27th meridian time, May 16, 1927. After examination of symbols see legend under Fig. 4.

season will go far toward making the meteorologist's dream of "wide-wide weather maps" a reality, and plans are on foot for construction by the Weather Bureau of the much larger of this device in the next season, at least as far as the North Atlantic is concerned.

Another project now under discussion and one which should be greeted vigorously is that of exploring the upper air over the oceans, with a view to securing much more information than we now have with respect particularly to the height of fog and the distances of short waves. For the few months we now possess have yielded information that is most useful. A year's campaign, with two or three land stations near the coast, preferably in Newfoundland, New Scotia and Labrador, and with two or three ships (none if possibly) stationed in selected portions, all equipped with balloons and balloons, and if possible, with airplanes also, would go a long way toward providing statistical information that is now so grievously lacking.

Lately there has been some discussion concerning the possibility of stationing floating airports at intervals along the coast. It is far easier to decide as to the feasibility of this proposal, but if it is feasible the problem of trans-Atlantic flight becomes very decidedly simplified. The great difficulty now is in finding days reasonably favorable for flight over the entire route. For numerous legs of one-third or one-half this distance the number of good days would be relatively enormous. Short trips would be taken to secure the week during weather, but even then the time required for the entire trip would probably be much less than by steam.

Lindbergh to Officiate at Model Contest

Col. Charles A. Lindbergh has accepted the nomination of the national contest in the construction and flying of miniature airplanes to be conducted on public playgrounds this summer. It was announced recently by the Playground and Recreation Association of America, which will conduct the contest. On the Wright in the model category.

The town of the competition, which was also announced are as follows: Boys and girls up to twenty-one years of age who attend playgrounds in the United States are eligible to compete in the local and national tournaments. There are two classes of competitors, juniors who have not yet attained the sixteen birthday on Sept. 30, 1937, and seniors who are past the sixteen birthday and who have not yet reached the twenty-first birthday on Sept. 30, 1937.

Local tournaments are to be administered by committees composed of the director of playgrounds, the president or vice-president of the chapter of commerce or other community body, one or more newspaper editors, a member of the board of education, and the president or vice-president of the local flying club, airport, or aeronautical society.

Tournaments to Include Ten Events

All planes must be made and operated by the contestants. In addition, to give material contestants are allowed to purchase or borrow from any propulsion, housing, propeller shafts, and metal parts. The tournaments will include ten events: five for both indoor and outdoor competition. Competitors may enter both glider and motor-propelled airplanes. Some events are for planes driven by rubber motors and have been included; others for planes carrying other motor power within the plane itself. The tests are the same of the motor-propelled models only. In motor events, places must rise from the ground. The scoring will consider the duration and distance of flights and weight carrying.

Fourth of all local competitions must be held on or before September 5, 1937; the results in these events furnished by the national committee must be in the hands of the committee at 315 Fourth Avenue, New York City, by 5 P.M., eastern standard time, Sept. 15, 1937. From the winners

in the local finals, the national committee will select five contestants in each event and such also to take part in the national finals at Madison Square Garden, Oct. 5, in conjunction with the Fourteenth National Recreation Congress. However, not more than one winner for each city is each event will be selected for the finals.

Individual awards will go to each of the junior and senior contestants winning the greatest number of points in the selected finals and to the person standing first, second and third in each event in the finals. Awards will also be made to the city having the largest number of local contestants. The names of the judges and the nature of the awards are to be announced later, according to the committee. Details of the competition may be obtained from the Playground and Recreation Association of America, 315 Fourth Avenue, New York City.

Food Tour Helps Advertise New Radio Set

Amateur and radio were linked in an unusual way through participation of the Crysler "Short" in the third National Radio-Advertising Tour, which ended at Detroit on July 32. The Short is a radio airplane, with 200 hp. Wright Wildcat engine, and was piloted by Powell Grier, Jr., president of the Crysler Radio Corp., of Detroit. It was piloted by Lewis John, a Civil War pilot of the same city, who, although compelled by a



The Crysler "Short" just before the Food Tour take off at Detroit.

denial for to make a forced landing near Ajijic, Mexico, on the third day of the tour, overcome this handicap in a large extent and landed the tour in each place.

The Short was needed because it carried to the 34 cities on the route of the tour a new set in the family of radio receiving sets, known as the "Radio-Short".

To enable distributors and dealers over the greater part of the country east of the Rocky Mountains to inspect the new product without the necessity of waiting for samples to be shipped, Mr. Crysler took advantage of the opportunity for speedy transportation offered by the new distributors and dealers located in or near the cities at which stops were made were utilized in advance of the Short's visit, and visited the various airports in large numbers. Harry E. Stevens, general sales manager, was a passenger over the entire route and was in charge of the solicitation of the marketing of the sets.

The new method of introducing new radio sets to the trade attracted much comment and resulted, it is said, in the direct transaction of a large volume of business during the tour.



THE CURTISS "CONDOR"

Again, in cooperation with Air Corps experts, the Curtiss engineering group has produced a new type of military airplane—the "Condor" night bomber, developed for the United States Army Air Corps. Powered with the new 600 H.P. Curtiss geared V-1550 engines, and carrying a useful load of more than three and a half tons, the "Condor" presents an entirely new conception of the performance possibilities of modern heavy bombardment aircraft.

THE CURTISS AEROPLANE & MOTOR CO., Inc.

Offices: Garden City, N. Y. Factories: Garden City and Buffalo, N. Y.





New Dornier-Wal Planes for Brazil

The Condor Syndicat, a German operating air line, reports a super-Dornier plane to be in Rio de Janeiro within a short time. This plane will have a capacity of 22 passengers and 7,500 lb. of cargo and is intended for use on the Rio to Santos line to be inaugurated by the Condor Syndicat, a second



Dr. Washington Luis, president of Brazil, and Major Sempronio de Barros in a Dornier-Wal.

plane is due to arrive shortly, while a third plane is also under order.

These planes will represent a great improvement over the present Dornier-Wal now used by the Condor in their service between Paris, Algeria, Rio Grande and Pelotas, which is a 16 passenger airplane equipped with Salm-Horn engines.

Additional Activity of Supermarine Works

The Supermarine Aviation Works, Ltd., of Winton, Southampton, has secured a large building at Little, near their present works. It is stated that this additional plant was needed to keep up with the firm's increasing business.

This firm designs and constructs engines, the latest type being a two-cylinder job with metal ball and floats, the metal employed being duralumin with electric valvetime stems. It is said to be 300 lb. lighter than with a wooden ball of the same size, while the gross weight is brought to 400 lb. more, due to the fact that the metal ball absorbs no water. Several sample planes of this type, to be fitted with Napier Lion engines, are under construction for the British Air Ministry.

Justus Transports in Argentina

Two Justus transports equipped with 155 hp. D. 31 W. engines, with a carrying capacity of four passengers, plus a pilot and a mechanic, arrived recently at Buenos Aires from Germany and have been delivered to the Ministry of War. These machines are similar to the ones at present employed in the Montevideo and Cordoba air transport service and will be used by the Ministry for carrying out inspection trips to different parts of the Republic.

Blackburn Represented in Brazil

The British firm of Blackburn Aeroplane and Motor Company, Ltd., has signed a contract with Messagero Lago, of the well known shipbuilding and seacoasting shipping concern, for constructing three planes to be in the service.

One airplane intended for the Brazilian Naval Air Station at Rio de Janeiro has already been assembled locally. It is planned later to build six others in Brazil under license of the respective designers, supplying only the engine and other essential accessories.

Swedish Aircraft Building Activities

Aircraft designer Flygindustri at Malmo is reported as operating at capacity with enough orders on hand to keep the plant busy for six months.

This firm is now advertising very extensively and the results seem satisfactory. It is reported that the Turkish Government has ordered one of the first planes, Capt. W. Bremer, of the Turkish navy and he is now in the country to demonstrate the plane. Another pilot, Engineer R. G. London, recently left Malmo in a large three-engine bomber plane of the G-24-L type and is now in Italy at the request of the Italian government to demonstrate this plane.

The same pilot and plane will later be sent to Yugoslavia, with which country the Flygindustri Flygindustri has been carrying on negotiations regarding the sale of military airplanes.

France May Increase Appropriations

In the French budget proposals for 1938, the Departmental Division of the Ministry of Commerce has reported that appropriations for the development of French civil aviation be increased from 17,000,000 francs (the 1937 total) to 225,000,000 francs in 1938.

The principal increases requested are as follows: For salaries to operating companies, \$1,000,000 francs, as compared to 750,000,000 francs; for industrialization in connection with technical and industrial research and development, 5,000,000 francs, instead of 1,150,000 francs in 1937.

Five million francs are requested in the form of a new budget item to cover the expansion of technical and industrial research equipment.

The French Government, it is reported, plans to speed up the construction of civil aviation during 1938 the sum of 41,000,000 francs and actually appropriated for the same purpose in 1937 10,000,000 francs as constant rates of exchange.

Airplane at Gase

Imperial Airways, Ltd., established an airbase in Gase, Palestine, early in 1935, where they operated about 50 acres of land for that purpose. The three airplanes will form a link in the chain extending to the newly opened Cairo-Bombay air route.

Airways Action

Airmen of Perth, Australia, reports that during the month of April the mail planes carried 17,677 letters and that during the month of May, 17,575 lb. of freight were carried, including several consignments of live all chickens, fresh fruit and vegetables.

Air Service for Iceland

Germany intends have been negotiating with the Icelandic government for the establishment of domestic air service and it seems possible that one will be placed in operation soon.



By KENNETH R. GORDON

Business naturally must be picking up for the Pressure Incorporated Company, when it was offered to take over the entire front cover of The Saturday Evening Post for its advertising.

That cover picture on the Saturday Evening Post—the picture of a fair-haired "Dancer"—has been jumping in our faces we first saw it. We've been wondering where we had seen the expression on the fair's face before—and it wasn't until just now that it came to us. He has just stated his flying instructor if he wasn't ready to sail and has just been told that he wouldn't be fit to take it to take him five more hours and night as well go back to his job on the ferry boat.

The newspaper description of a proposed Post Office building for the Chicago post office, that the job of the building will be well as a landing field for the new mail planes—"The ultra-modern feature of a three fold is planned to a level concrete structure without obstructions of any kind, except for a slightly rising outline of one and the other side."

In order to make full use of this slightly rising outline which is supposed to be the take-off, we suggest that the building be mounted on a civil and filed with a large

radar which will lead the money into the wind at all times. If this can't be accomplished the only alternative we see is to suspend the service until the right wind happens along.

The aircraft industry can be justly proud of the explanation given that have been selected for our true-Attitude airplanes. It took the Pullman Company years and years to train their staff of Pullman car conductors, only to have the aircraft designers blossom and right away with such names as "Egbert of St. Louis," "Columbia," "America" and "Old Glory" which are distinctly "Heater" than any of the car names yet conceived. It's just a gift, we suppose.

One of the American said at an eastern flying field for training purposes has disappeared, and that play is suggested. Another Jerry has been held as a material witness after it was found on the field bearing different business numbers as its upper and lower wing panels.

A New York paper, in describing a new racing airplane, stated—"Climaxing, steadily, less the wings less pointed down, streamlined, and they have become hardly more than supporting surfaces." At this seems to be a reflection on the rest of the aircraft designers, no demand information concerning anyone in the profession who has been using wings for any purpose other than supporting surfaces. If any model of an aircraft designer has been using wings to craft, make with, for instance, is desired to be reported to the Department of Commerce.

38,000,000 Sparks

THE two Scintilla Aircraft magnetos which equipped the Wright Whirlwind engine, powering the Trans-Atlantic Bellanca monoplane, performed perfectly throughout the entire trip, as is evidenced by these telegrams. It may be of interest to record that during this flight approximately 38,000,000 high tension sparks were delivered to the engine.



Scintilla Magneto Company,
Rutherford, New York
Contractors to U. S. Army and Navy

SCINTILLA

Aircraft Magnetos

AIRPORTS AND AIRWAYS

Wichita, Kan.

By Zack Taylor

Since the arrival of the National Air tour in Wichita, on July 30, air circles in that city have been buzzing with new life.

H. H. Griffin of Oklahoma City and Art Gorkin, California owner here, have coordinated for Travel Air acceptance, and W. E. Brown, Dallas, Tex., is in Wichita supervising the building of a Travel Air hangar.

The National Air tour visitors were entertained in Wichita at the new factory of the Travel Air Corporation. Walter Douch, president, states at present there are 150 men working in the factory. More will be added from time to time, H. E. Wehlander and K. G. Rosetti are the plant engineers.

Herbert J. M. Kofordich, president of the Travel Airplane company, announced the addition of the Wichita plant with that of Roy Price, manufacturer of Lincoln Standard airplanes. Plans of the Lincoln plant, and also for its metal parts, are being shipped to Lincoln, Neb., and production of Lincoln planes of the Lincoln plant is expected to begin shortly.

Expanses of National Air Transport, Inc., have been announced in Kansas lately. The air mail contractors were the successful bidders on the construction of a United airport near Wichita to Kansas City. It is estimated by officials that the route will be completed by Sept. 1. A night mail

line from Kansas City to Dallas, either as a supplement or replacement of the day service, together with a regular passenger service, probably will begin sometime in September, according to officials.

N. A. T. has received one of the eight Travel Air hangars ordered several months ago. Most of the planes delivered have been stationed at the main airports of the line on seacoast planes.

Charles Lued, well known Wichita designer, has completed a layout of new design and states that he expects to manufacture the plane commercially.

Boise, Idaho

By Robert Edward Blackman

The superintendent of Arroyo Extension, John Bonifacio, located in Boise at present, is making a survey for 35 hours before the Boise and Pocatello airway. The Yancy planes, now able to carry mail only by day, will do night flying when necessary and weather permitting.

A final plan for the Boise-Pocatello late survey has been submitted by Mr. Vaneck, according to an announcement of Mr. Wickham, survey manager. The new plane, a special one, will be a Lloyd Standard with a 30 ft. spread, 200 ft. payload capacity, looking 30 ft. of payload. Its cruising speed will be 130 mi. at 1800 r.p.m. Some 15 Caddisfly, chief pilot for the Yancy airway will fly the new craft to Boise.



Another modern hangar recently designed and built by The Austin Company in Chicago for a mail express air transportation company.

Leaders in Air Transportation Employ Austin Design and Construction

EXPERIENCE is essential in designing and building hangars, airports, and other buildings for the aviation industry.

Austin has worked right along with this new industry practically from its beginning. The largest airplane factory in the world is of Austin design and construction. Numerous projects for air transport companies, for plane manufacturers, and for the government, have been handled in their entirety by the Austin organization.

Layout, design, construction and equipment are all handled under one contract which guarantees:

- A Total cost for the complete project in advance.
- B Completion date, with bonus and penalty clause if desired.
- C Quality of materials and workmanship.

Or if the conditions do not warrant placing the complete project with Austin, plans, specifications and materials will be furnished.

Write, please the nearest office, or mail the Means, for approximate costs and other information.

THE AUSTIN COMPANY, Engineers and Builders, Cleveland
New York, Cincinnati, Chicago, Denver, Pittsburgh, Philadelphia, St. Louis, Seattle, Portland, Miami.
The Austin Company of United States The Austin Company of California Los Angeles San Francisco

AUSTIN

Complete Building Service

Write to THE AUSTIN COMPANY, Cleveland—

We will mail you a

brochure containing information on building or building a general type of

building. You will also receive a general type of

building. You will also receive a general type of

building. You will also receive a general type of

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NATURALLY

THE LEADING GRADE "A"
AERO-CLOTH FOR 16 YEARS

DURETH-TEX, because it meets in every way the requirements of airplane builders, has naturally been recognized as the leading standard fabric in America since the early days of the industry. Dureth-TEX is a waterproofed cotton, full weight fabric, 16 inches wide, for cotton, and suitable for airplane construction. It is guaranteed to meet the most rigid government specifications, and can be obtained in numerous rolls, which serve as pattern pieces, and sometimes, it is not a pre-treated fabric, although it can be supplied in pre-treated form.

Durable tapes of all kinds—service tapes, girths, gunlines—can also be prepared and made for any machine delivery. Write for samples and quotations.



W. HARRIS THURSTON
THURSTON CUTTING CORPORATION
115-119 FRANKLIN STREET
NEW YORK CITY



Night Landings Require Maximum Illumination for Maximum Safety

The difference in retail cost for lighting equipment that provides maximum safety is comparable with the cost of the ship that may "crash up" or possibly the life of the pilot attempting to land with inadequate floodlighting.

Send glossy model on request

B.B.T. CORPORATION OF AMERICA

AN AVIATION
ILLUMINATION
CORPORATION

Simms, N. D.

At a special meeting at the hotel of directors of the Business Association recently, a lease was negotiated for an empty acre piece of land on the river bottom, just south of the city, which will be developed as Simms aviation lake. The landing field will be marked immediately with signs which are familiar to aviators so that they can see the landing as soon as they arrive over Simms. It will be a public landing field, available to all men who wish to make a stop in North Dakota's capital city.

The land is very rich in timber, and much has been purchased by aviators who have landed there recently to bring very valuable fur that purpose. It is less than a quarter of a mile south of the lake park, on the east side of the road which runs southwest from the park.

As a result of the action of the Association of Commerce in securing this landing field, an airport and aviation school will be established by the Northwestern Aircraft company, according to T. B. Irvine, general manager and J. S. Repplier, chief pilot, who have been in the business since 1923, having been located at Kenosha, but will move to place and supplies to Simms shortly, according to W. Irvine.

Hedley Field, New Brunswick, N. J.

Activity at Hedley Field continues at high pitch and is, in fact, steadily increasing. As is well known, the field which is located five miles northeast of the city of New Brunswick, N. J., on the River Street, in the eastern terminus of the transcontinental Air Mail Service which has been opened by the Post Office Department and is now being turned over to private contractors. The mail service divides into two parts: one to Cleveland and the West, while Cleveland Air Transport operates the mail service between New York and Boston with a daily service and leaving each day for six days of the week.

Pittsford Aviation, Inc., has established a flying field adjoining Hedley Field where there is maintained a branch of the Pittsford Flying School, and a Pittsford Aerial Service station. In connection with the operation of the New York Airline air mail service, which is to be opened by Pittsford Aviation in the Fall, this field will serve the New York Terminal.

The Aero Club of New Brunswick, the members of which fly from the Pittsford field, has purchased a Pittsford Growing (UGS) and another one recently receiving instruction on this place and making short cross country flights to the numerous other fields which are to be found in this section.

Various other air-aid travel agencies at the Pittsford field. This location may readily be spotted by means of the air mail hangars and the radio tower.

Loupsville Field, Letrohe, Pa.

By Ben Snyder

Loupsville is looking all fields in its part of the state for business. A new American Express, two Canadas, a Jersey and an American West are used on the field. The American Express company is also located there. The flying school has thirty-two students enrolled and a weekly class will start shortly.

Over 300 passengers were carried during the month of July last month, forty percent of which were women.

The personnel of Loupsville is as follows: Charles B. Gentry, owner and manager; Carl Strickland, chief pilot and instructor; Raymond E. Egan, assistant pilot; Ross Strickland, business manager; N. C. Crane, exhibition manager.

Rocky Mount, N. C.

A meeting of the aviation committee of the Rocky Mount Chamber of Commerce was held at the office of the commercial aviation July 1. J. H. Beeson presided over the meeting, stating the purpose and calling attention to the importance of Rocky Mount being developed as a center for establishing an airport.

After a full discussion of the subject by all members present, it was the unanimous opinion that steps should be taken immediately to secure for Rocky Mount a first class landing field.

A motion was carried to divide the committee into three sub-committees, as follows: Information committee: R. H. Austin, J. H. Winstead, T. A. Ayers, Committee on location of site: J. H. Winstead, J. A. Higgins, N. Y. Chappelle, R. B. Davis, F. F. Fagan, T. L. Sweeney, Ray and Marie Committee: L. L. Gentry, W. A. Redick, F. F. Gentry, C. C. Ward, M. F. Jones.

Airport Site Selected for Montreal

A site on the shore at Montreal has been selected for an airport by the Dominion Government. Numerous plans are reported by representatives of Canada and Great Britain. The decision is that of Montreal was made chiefly because of its connection with the St. Lawrence River. A large meeting will be held in connection with the airport and the British government expects to place a reproduction next year between London and Montreal.

Spokane, Wash.

By E. Shaw Partridge

What western fairs say is a Pacific Coast speed record for D-31 jobs was made early this month by Pilot Bob D. Moore of Spokane when he flew his biplane from Spokane to Santa Ana, Cal., in 12½ hours of flying time. The distance by air line is estimated at 1300 miles, giving him an average of more than 200 m.p.h.

Moore represented Spokane in the Northwest Air Derby Association of Spokane in interesting California manufacturers and pilots in the national air race and the Northwest Spokane and San Francisco-Spokane air division, to be held September 18 to 24.

No date on the outcome of the Santa Ana race had been

announced at the time Pilot Moore left there on the return trip. He stopped en route here to talk with local and prospective parties.

Douglas Smith, Spokane pilot, told Joe Moore in a group at Chas. G. H. Smith's, who represented plans of producing first flying in an old plane and then acquiring a machine of modern construction.

Pilot Moore and Edna Stone, an Idaho guide, have brought together a Standard with 1500 miles. Stone has taken in aviation with Pilot Moore and expects to use the plane to carry passengers into the wild to fish and hunt.

Moore has eight students now taking instruction, the graduation and success having kept the total at about that number all this year. There has been enough commercial business at the field to keep Moore and his rival pilot, Ralph Shewchuk, busy on Sundays. The week day passenger plane has been more common than in previous years.

Air mail out of Spokane office, which is located largely over the Pioneer Hotel, Cal. M. 2 operated by Walter T. Varnum, is bringing all records for volume. Business men and others are utilizing the service to speed mail to New York.

Minneapolis, Wis.

The Headman Manufacturing Co., of Minneapolis, makers of the monoplane "Gleason Henderson," which was second place in the Ford reliability tour, will file articles of incorporation with the secretary of state at Madison. The company will produce the transportation rights to sell aircraft and parts, machinery and tools, and to operate a transportation business for the carrying of passengers and property in a business service.

A number of young Minneapolis men have organized a club to promote aviation and will purchase a new Standard plane. Officers of the organization are: Paul W. Trice, president; Frank Russell, secretary, and Joseph H. Mader, chief pilot.



We could make cheaper airplanes, but they would not be Travel Airs.

We could charge more for Travel Airs, but that would not make them better.

Ask for catalog showing the various models. It's yours for the asking.

TRAVEL AIR MFG. CO., INC.
WICHITA, KANSAS.

DO YOU KNOW

Who are the engineers connected with the aircraft industry who hold the degree of AERONAUTICAL ENGINEER from a standard American University?

They are listed in the

AMERICAN AIRCRAFT DIRECTORY

Everything of importance in American aeronautics will be found on the pages of this Directory.

And your order today

AVIATION PUBLISHING CORPORATION
259 West 57th Street, New York City

FOKKER and SAFETY are Synonymous

Originality Plus Development

FOKKER aircraft combine the skill of 15 years' continuous manufacture of the world's most stable and leading airplanes. The achievements of FOKKER airplanes are the results of years spent in studying and developing ships that are right.

Their "teething" days are over.

That is why it is to your advantage to buy FOKKERS.

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Sales Office:
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The first FOKKER was built in 1911 — A Pioneer.

The delicate membership of the club has not been decided upon and, according to Mr. Trice, there is still a few memberships open. The club will use a pasture west of the Cadbury airport as their landing field.

M. C. Hubbard, owner, a representative of the Alexander Aircraft Company, flew a demonstration Englishman to Milwaukee this week and assured much interest in the plane at the Cadbury airport. Mr. Hubbard will leave the Cadbury post this week to bring back a new Englishman for the club and he is expected to be back with the plane early next week.

"Madison Milwaukee," the Hamilton all-metal monoplane, Milwaukee entry in the Ford reliability tour, which was issued plan, arrived at the Milwaukee airport July 14. The Association of Commerce welcomed the plane which carried Thomas F. Hamilton, Mrs. Hamilton, and pilot Randolph G. Page.

The plane, which traveled 4,000 mi., not extremely rough weather about 30 mi. outside of Detroit, had Pilot Page's years of all weather flying in the air mail service vouch for its good stead, and he is expected to land at the "Madison Milwaukee" in time to hold second place over the challenging Mercury before leaving.

Matthew B. Stone, head of the Myrtle Mills company, Tampa, Fla., recently flew to this city alone to visit his father who is president of the Wichita society. Mr. Stone was forced to make his own repairs in a field at Depue, Ok., when magnetic trouble developed. He will fly to Baltimore in a few days where he will visit other relatives.

James G. Denton, a member and also secretary of the society, paid considerable, but unduly, the magnitude of Professor Peter F. Flanagan that as his head, composed of representatives of business and civic organizations is formed to test and increase the amount of air mail service in and out of Milwaukee.

A city-plane left on his home 3 mi. south of Oconomowoc, Wis., was forced recently by Col. Fred Pabel to the United States government to a landing place for airplanes.

The issue was explained by Lieut. Bert H. Dickinson, emergency representative, as a part of the Chicago-Trip relief and route. A new type of automatic receiving beams will be installed at the field.

Superior, Wis.

On July 30, the Trump Airways, Inc., began the operation of an isolated plane for passenger service between the twin ports and the twin cities. C. W. A. Trump of the company reached an agreement with A. H. Rose, president of the Arrowhead Airways, Inc., which is also operating a line between the same cities, to use the same field lines in case of landing.

Wauzau, Wis.

Since the visit to this city of Major Douglas and his companions with their Army plane, interest in aviation is at its highest, and Harold L. Gause, president of the local chamber of commerce, has appointed a committee to make plans for a suitable landing field.

In a letter sent to the members appointed to the committee, Mr. Gause said: "Major Douglas's visit was in Wisconsin proved the necessity for a landing field. His plane was unable to land in the field intended for the purpose."

Dallas, Texas

On Friday, July 8, the City of Dallas took possession of Lewis Field, purchased from the Lewis Field Corporation. The land consists of 110 acres, some being used as a landing field, and in addition the city bought two adjoining tracts, sufficient to increase the area to 170 acres. Improvements, to include the erection of a large hangar to house the largest planes constructed, and a two-story administration building and clubhouse, will be undertaken. This latter structure will provide sleeping quarters for visiting pilots and will also contain a restaurant.

City officials, following the announcement of the purchase of Lewis Field, pointed out that Dallas was also an aviation center. There may be used near Lewis Field, as Bushman's Lake. Lewis Field is already equipped with floodlights for night flying and with meteorological equipment for determining weather conditions.



Bombing Matches, Langley Field

In the Fourth Annual Bombing and Bombing Competition, recently completed at Langley Field, Va., Capt. Hugh M. Elmsford, a member of the First Pursuit Group, Springfield, Mo., was the winner of the contest for pursuit pilots. He led all competitors in this contest with a score of 691.5. Members of the First Pursuit Group also took second, third and fourth place in this competition, as follows: Lieut. William L. Casanova, with a score of 710.1; Lieut. Victor H. Brown, with a 517.4 and Lieut. L. A. Smith, with a score of 514.7. Of the eleven competitors in this phase, six were members of the Army Air Corps and five of the Marine Corps.

The matches for observation and attack pilots, in which seven competitors were entered, developed a close race for first place between Lieut. Earl R. Partridge of Kelly Field, Tex., and Lieut. Elmer J. Rogers of Langley Field, Va., the former having won with a score of 656.4 with the latter being second with a 635.2.

In the matches for pursuit pilots and for attack and observation pilots, described above, 300 rounds of ammunition were fired at the ground target, a 36 in. ball's eye target was hit by three and by ground troops equipped with rifles and looked at an angle of 60 deg. with the horizontal; 300 rounds of ammunition at the low target, which consisted of

a timber stack 30 ft. long and 3 ft. in diameter at the front and end and topped at an approximate speed of 75 m.p.h., and 18 bombs in low altitude bombing, in which 300 ft. was the minimum altitude fired, and at a target which consisted of a ball's eye 15 ft. in diameter enclosed in a 50 ft. parapet, 8 ft. in the ball's eye having mounted 20 points.

Lieut. James E. Parker of Finner Field, Panama Canal Zone, was the winner of the observation match, Lieut. Arthur Thomas, of Post Base, Houston, Tex., taking second place and Lieut. Harold C. King, of Finner Field, Panama Canal Zone, coming in third. There were twenty competitors in this contest. In the observation match, 180 rounds of ammunition were fired at the ground target, similar to the 30 in. ball's eye target used by ground troops, and 97 rounds at the low target, described above.

Four teams were entered in the bombardment match, two from Langley Field, Va., one from Kelly Field, Mo., and one from Finner Field, Panama Canal Zone. Lieut. W. J. Larson and H. C. King, from Finner Field, won first place with a score of 1118. A Langley Field team, made up of Capt. W. H. Hale and Lieut. H. S. Walker, won second place with a score of 1008. Intermediate and high altitude bombing were the two events of the bombardment contest. The target consisted of a white circular ball's eye, 30 ft. in diameter, in the center of a white ring, 200 ft. in diameter. A hit in the 300 ft. ring counted 100, the value of other hits having been determined by actual measurement in scale from the center of the target. The maximum altitude in the high altitude bombing was 4,000 ft. and in the intermediate altitude bombing was 2,000 ft. Near 300 ft. bombs were dropped singly on separate targets over the target. In each event the first bomb dropped was considered a sighting shot and was not counted in the score.

Altogether there were 53 competitors in the machine gun and bombing matches. 76 from the Air Corps of the Regular Army, 16 from the National Guard and 5 from the Marine

Finished with Aircraft Berryloid



STINSON MONOPLANE WINS NATIONAL AIR TOUR

Lido Stinson's new monoplane which scored 3523.7 points and took first place in the second National Air Tour was powered with Berry Brothers' Progressive Aircraft Finishes—including Aircraft Berryloid, Insul and Ercyl's Metals Wire Dope.

Twenty-one percent of the 32 planes entered in this race for the Gold

Field reliability trouble and one of the 10 winning planes was loaded with Berry's products.

Stinson's winning monoplane is now being prepared for a flight around the world. Its gas turbine engine and its products made by Berry Brothers.

On the Wings of Progress

Berry's aircraft finishes are used by 85% of America's commercial airplane builders

BERRY BROTHERS
Largest and Progressive Aircraft Finishes Manufacturers

Member Aeronautical Chamber of Commerce

DEPENDABILITY

DEPENDABILITY was the deciding factor in the National Reliability Tour.

The DEPENDABILITY of the B. G. HANSEN spark plug for commercial aviation service, particularly in modern aircooled engines, has again been demonstrated under the extremely exacting conditions of the Tour.

Ten of the twelve planes completing the Tour, including the first race, used B. G. HANSEN'S.

During the course of the Tour, several flyers replaced their porcelain spark plugs with B. G. HANSEN'S.

None of the B. G. HANSEN'S were replaced.

The B. G. HANSEN spark plug with its aircooled engine and its aircooled engine.



THE B. G. CORPORATION
136 WEST 52ND STREET - NEW YORK CITY

PUBLISHER'S NEWS LETTER

The Third National Reliability Tour has been successfully concluded and much has been learned concerning the increasing complexity of our transport airplanes. The Ford Tour, to give it its proper name, has had a great influence on the development of commercial types of airplanes in this country. Before the first two, little was known as to the relative performance of this new type of plane but during the three latest flights, the public has been allowed to inspect commercial planes with great interest.

Good credit should be given to the manufacturers of commercial aircraft for the interest they have taken in this national event. They have spent liberally of their own funds to provide interest, as well as to accompany their pilots to participants. Their reward has been largely in the form of practice and publicity. To complete the Tour with even a few more was regarded as a fine performance. This year, the route was a real test of the flying qualities of both planes and pilots. In several busy parts of the country that had not been visited before and crowded harbors that taxed the speed, climb and the load carrying power of all the entries.

Looking to the future and the possible changes that might be made, a suggestion may be welcomed or at least start a discussion. Hereafter the Tour has been sponsored principally by the manufacturers of the planes that were entered. Every pilot was what might be termed a professional. Next year it may be possible to induce individual owners of planes and amateur pilots to enter the Tour. Of course to do this, special incentives must have to be offered in the form of certificates and handouts. If the Ford Tour is to follow the precedent of the automobile tour it will have to add the privately owned plane. Some of the present features will have to be changed. The route, instead of looking on the greatest number of cities that will offer \$1,000 prize money could become more of a series tour with the bonuses to be won from the air over new ground. By making such a variation next year it might be possible to attract privately owned planes and

owners and pilots and give a demonstration not only of the reliability of our new commercial aircraft but show the country the possibilities of aircraft for sporting purposes.

To make this change, a new formula would have to be worked out which would give greater emphasis on safety, performance and comfort and less on useful load per horsepower. Perhaps, instead of a formula, a committee of impartial experts could be appointed to judge those more or less indicative qualities of commercial aircraft. They would pass on the convenience of entrance and exit, the comfort of the seats, the view of the country, the visibility, protection from wind and rain, as well as other conveniences. Even such expert juries as competitors for ten dollars have would be considered. The convenience of starting the engine, the size and accessibility of the baggage compartment, the possibility of folding the wings, all would introduce elements that would make the result less of an aerodynamical victory and lead designers to think more in terms of what passengers will require in the future. While this plan would place a difficult burden on the committee, it would certainly cause the manufacturers of planes to give more to what, after all, will be some of the strongest selling points for their products. The committee that would be introduced would spend in the public and secure more publicity. Valuable information would be secured that would advance commercial aviation greatly.

This introduction of the private owner may do more than to let the public know that such a class exists; it may counteract the impression that ownership of a passenger plane means the employment of a pilot. With the great enthusiasm of the public for flying, it may be possible that the exact requirements for the prospective owner of aircraft are not as well known as is generally believed. What is clearly understood by the informed may be very new to the general public. The Ford Tour, if it is to continue to be a contest of manufacturers and professional pilots will gradually become less and less interesting. Some new ideas will have to be introduced and with that in mind the above discussion is suggested.

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RAY BRYAN

Reliable of the Southwest plane, also available. Ryan Airlines has a very fast airplane (1937 Ford) for hire. (1937 Ford) available for hire.

IMPERIAL AIRCRAFT CO., INC. San Diego's largest, most complete selection of 100 new. Commercial flying service. Complete flying instruction. Airplane, plane and auto service. Service in all states. Airplane, plane and auto service. Service in all states. Airplane, plane and auto service. Service in all states.

NEW HAVEN, Connecticut. Airplane to America. Flying. AIR TRAVEL, Inc. P. O. Box 100, New Haven, Conn. Send for prospectus of our business flying school. We have the best instructors, newest equipment and complete facilities. Representatives of New England's Airplane Flying School.

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Learn under famous Cross-Country Pilot. Flying, Theory, Instruction, Repair, Aerial Photography, and Business Management taught. Complete Commercial Aviation School in the United States, 628 S. Dearborn Street, Chicago, Illinois. Write for free booklet.

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10 CENTS A LINE PER COLUMN (CHARGE \$1.00 PER LINE IN ADVANCE). ADVERTISERS TO BE RESPONSIBLE FOR THE CONTENTS OF THEIR ADVERTISEMENTS. NO ADVERTISING IN THIS SECTION FOR LESS THAN \$1.00 PER LINE.

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WANTED for Cetus Flying Circus two licensed transport pilots. Must thoroughly understand Illinois. Also two good licensed airplane mechanics, last paying job in country to suit men, old timers only. Women not accepted. Address and only, giving full qualifications first letter. Cetus Flying Circus, 725 Washburn Building, New York City.

Engineer mechanics wanted by foremost commercial airplane company. College graduates in auto course preferred. Six years experience, minimum salary and date of arrival. Box 618, Annapolis.

WANTED: Immediately, men thoroughly capable of supervising the construction of commercial airplanes. Address: Amersbach Co., Little Rock, Ark.

POSITIONS WANTED

Young pilot wants position as helper with pilot who has plane. Fred Anderson, Box 17 34 1, Watford, Mich.

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WANTED: One A. 6 or Ryan Standard, or similar could be used in first class condition delivered to Delaware Water Gap, Pa. Arthur S. Cox.

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FOR SALE: Hisco motor, 150 hp, model A, new piston assembly, auto bearings and cylinder, make two speed plane, 2075-06. W. C. Lewis, 1203 Ward Ave., N. W., Washington, Va.

FOR SALE: Aero OX5 (topper), upper and lower right wings, metal landing gear, DSE tires and wheels, tail group \$175.00. OX5 motor, tanks 1425 cc ground, 2000 cc, French Wauking, 2609 N. Herndon St., Indianapolis, Ind.

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DISALUMES sheets, 7' x 6' x 1/16", best treated, heavy stamped, over 14,000 lbs weight, 27.50 per sheet. Air Transport, Oak Park, N. Y.

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FOR OFFER sale cheap: OX5 and Indivine Standard, under overhauled, also each done streamlines fabric with front seat, engine and complete covers. Ship in good shape. In 10 days. Box 600, Annapolis.

FOR SALE: Curtiss Standard, overhauled air tank and Liberty motor. Curtiss Metropolitan Airplane Co., Port Washington, Long Beach, N. Y.

FOR SALE: M. F. Price boat, just overhauled, with new ribs and bottom with model A Hisco motor. New Orleans Air Line, New Orleans, La.

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HAVE \$1500 to invest in strong proposition of most State full particular first letter. Annapolis, Box 600.

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Will accept monthly payments. Delivery can be made by truck. Assemble as you pay.

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New, perfect condition.

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Booster magnetos, D H tires and wheels. Write for complete booklet. Include postage.

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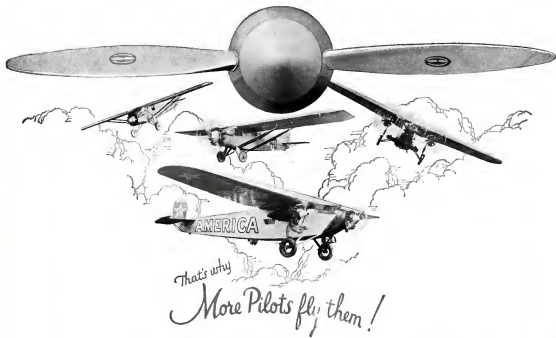
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The Lindbergh, Chamberlin, Maitland and Byrd flights had one common factor—the Wright Whirlwind Engine.

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